



Analysis of Migration Data

United Nations Statistics Division



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 - ❑ Basic tabulation and measurements used in analysis



Basic definitions and concepts

❑ Definition of migration

“Migration is a form of geographic or spatial mobility involving a change of usual residence between clearly defined geographic units”



Basic definitions and concepts

- ❑ What is the definition of usual residence?

According to the UN Principles and recommendations:

“Usual residence is defined for census purposes as the place at which the person lives at the time of the census, and has been there for some time or intends to stay there for some time”

- ❑ What some time means ?



Basic definitions and concepts

- ❑ It is recommended that countries apply a threshold of 12 according to one of the following two criteria:
 - The place at which the person has lived continuously for most of the last 12 not including temporary absences for holidays or work assignments, or intends to live for at least six months
 - The place at which the person has lived continuously for at least the last 12 months, not including temporary absences for holidays or work assignments, or intends to live for at least 12 months
- More suggestions for determining usual residence of special groups– see the P&R



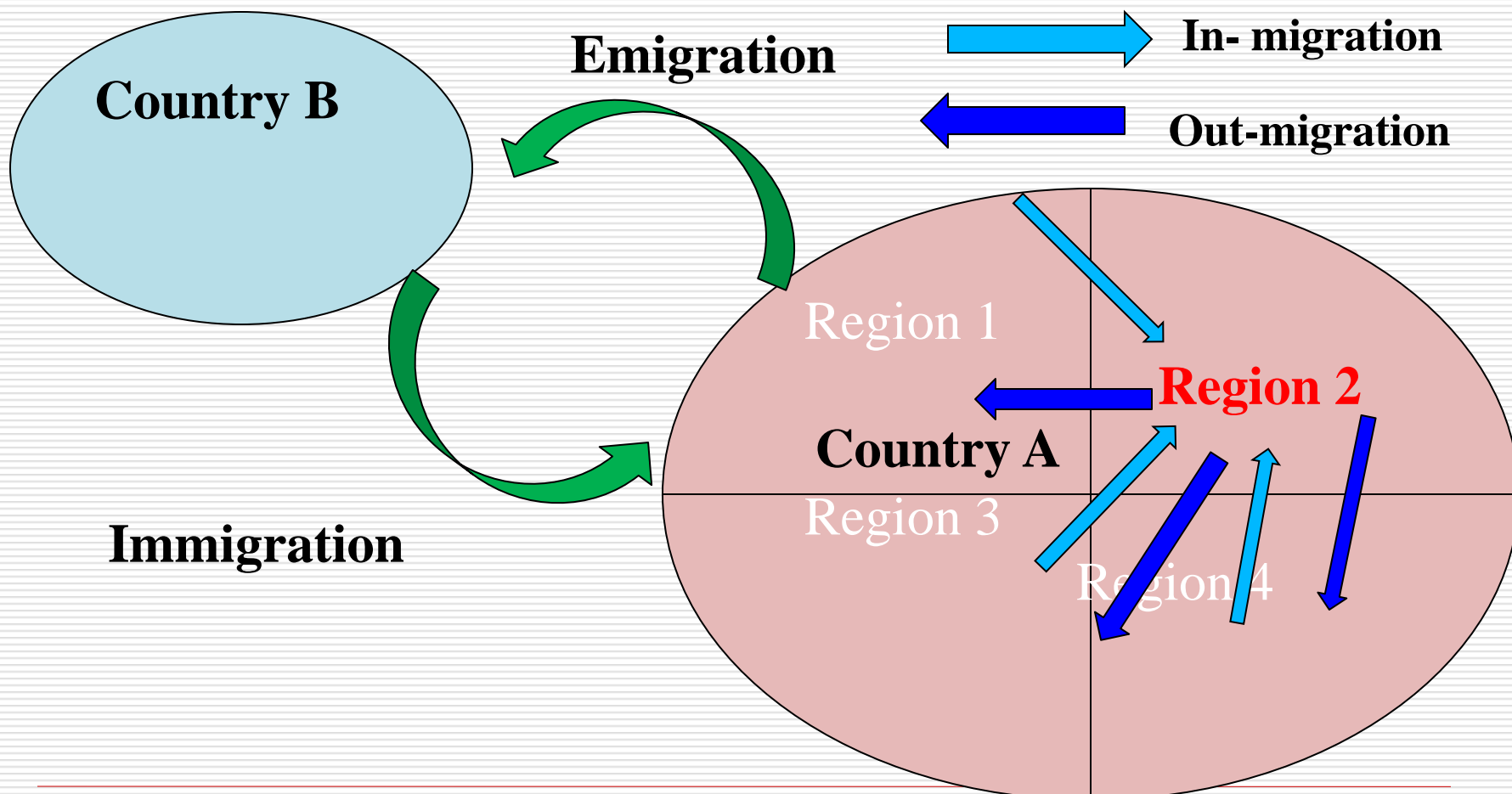
Basic definitions and concepts

- ❑ International migration refers to movement across national boundaries
 - It is emigration from the standpoint of the nation from which the movement occurs and
 - It is immigration from that of the receiving nation

- ❑ Internal migration refers to migration within the boundaries of a given country
 - In-migration
 - Out-migration



Basic definitions and concepts





Basic definitions and concepts

❑ **Country/Area of Origin (departure)**

- Country or area from which a migrant moves- a country or area of residence at the beginning of the migration interval

❑ **Country/Area of destination (arrival)**

- Country or area to which a migrant moves- a country or area of residence at the end of the migration interval

❑ **Length of Migration Interval**

- the length of the time interval between the date of arrival and the date of the census



Basic definitions and concepts

❑ **In-migrant**

- A person who moves to a migration-defining area from some place outside the area but within the same country

❑ **Out-migrant**

- A person who moves from a migration-defining area to a place outside it, but within the same country

❑ **Non-migrant**

- A person who has remained a resident of a migration-defining area but who may have changed residence within this area



Basic definitions and concepts

❑ **Net in- migration**

- The calculated balance between in-migration and outmigration

❑ **Migration stream**

- A group of migrants sharing a common origin and destination within a given migration period- movement between two type of residence areas (from one region to another, from rural to urban)

❑ **Return migrants**

- A person who move back to area of former residence such as place of birth-exp. A person who was born in Yangon and migrated from Yangon to NPT



Basic definitions and concepts

❑ **Immigrant**

- A person who migrated to the area from a place outside the country

❑ **Emigrant**

- A person who migrated from the area to a place in another country

Migration is arbitrarily defined with reference to time intervals and geographic boundaries



Sources of data-International migration

- ❑ Population and housing censuses
 - Through inquiries regarding previous residence, place of birth, nationality or citizenship

- ❑ Administrative registers
 - Border control, and “passenger statistics
 - Passports and of applications for passports, visas, work permits

- ❑ Population registrations
- ❑ Household surveys



Sources of data-Internal migration

- ❑ Population and housing censuses
 - Through inquiries regarding previous residence, place of birth, nationality or citizenship

- ❑ Population registrations
 - Through changes in place of usual residence-updated information

- ❑ Household surveys



Suggested topics for international migration-Core topics

Population Statistics Division

□ International migration

- **Country of birth (from the question on place of birth)**
- Citizenship
- Year or period of arrival in the country if ever lived abroad
 - and from what country
- **Emigration – not core topic**
 - Data on emigration derived from censuses are deficient because of difficulty of counting people who are no longer resident in the country and the lack of clarity surrounding its definition resulting in substantial but often unknown degrees of errors of coverage and content –should be used with caution



Migration rates

- ❑ Appropriate base for calculating any rate is the population at risk of the occurrence of the event under consideration
 - ❑ For mortality and fertility, population at risk is clear
 - ❑ It is less obvious in calculating rates for migration
 - What is the population at risk for different types of data on international migration?

 - ❑ No particular set of rates has yet become standard as fertility and mortality
-



Migration rates

□ If annual data for immigration and emigration is used, several crude rates can be constructed per 1000 of the midyear population

$$\text{Crude immigration rate} = \frac{I}{M} \times 1000$$

$$\text{Crude emigration rate} = \frac{E}{M} \times 1000$$

$$\text{Crude net migration rate} = \frac{I - E}{M} \times 1000$$



Illustration-International migration

Country and year	Immigration (1)	Emigration (2)	Population (3)	Immigration rate (1)/(3) *1000	Emigration rate (2)/(3) *1000	Net migration rate [(1)-(2)]/(3) *1000
Kazakhstan, 1994	401	811	16,740			
Japan, 1995	88	72	125			
Canada, 1995	300	166	29,615			

Source: The Methods and Materials, 2004, Chapter 18



Migration rates

- ❑ When the migration data come from census (or survey) the data are usually restricted to the cohorts of persons living both at the beginning and at the end of the migration period (exp. Excluding immigrants who were born, died or emigrated during the period)
 - ❑ In this case, use of a mid-period population may be less appropriate and less convenient particularly for migration periods of more than 1 year
 - ❑ It is common to use the census population as a base
-



Migration rates

- Immigration rate for the area during the period
 - Number of immigrants / Total population at the census
 - Roughly interpreted as the rates of immigration
 - More exactly, it is proportion of immigrants in the population
-



How to analyze international migration data

❑ Statistics on immigration stocks

- *Stock of foreign-born population from country of birth*

- Stock of foreigners from citizenship
- Number of returned migrants from year or period of arrival

➤ Return migrants might be analyzed some extent based on the last movement -place of previous residence and place of birth



How to analyze data on country of birth

□ Data quality

- Commonly used for analyzing immigration stock in the country
 - Usually it is good quality -each person has only one country of birth and it does not change over time
 - Some of the problems are:
 - Confusing arising from changes in national boundaries of countries
 - High rate of non-response or unknown response
-



How to analyze data on country of birth

- Some suggestions for tabulations on the stock of foreign-born population
 - **Data can be presented by native-born and foreign-born population separately ??**
 - Foreign-born population by sex, age group and country of birth
 - Foreign-born population by sex, age group, marital status
 - Foreign-born population by sex, educational attainment and country of birth
 - Foreign-born population by age group, sex and activity status-employed, unemployed, status if not economically active
 - Economically active foreign-born population by sex, age group, occupation, industry
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How to analyze data on country of birth

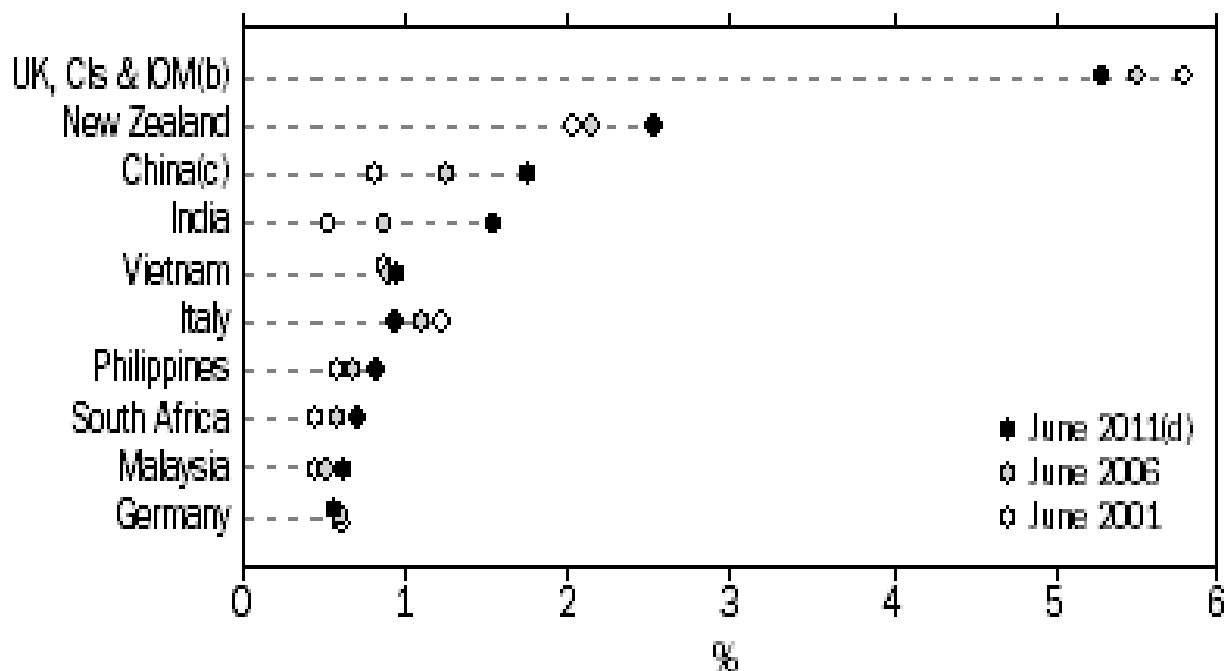
□ Basic indicators

- Total number of foreign-born persons (by citizens and non-citizens ??)
 - Percentage of foreign-born population in total population by country of birth
 - Proportion of female population among the foreign-born (or alternative, sex ratio of the foreign-born population) by country of birth
 - Percentage of foreign-born population by sex, age group and country of birth
 - by geographical areas in the country (state/region)
-



Country of birth

1.2 COUNTRY OF BIRTH(a), Proportion of Australia's population



(a) Based on the top 10 countries of birth (excluding Australia) at 30 June 2011.

(b) United Kingdom, Channel Islands and Isle of Man.

(c) China (excludes SARs and Taiwan).

(d) Estimates for 2010-11 are preliminary released —see Explanatory Notes 9-10.



Country of birth

Regions of birth, Proportion of Australia's population, 30 June - 1999 and 2009

	1999 %	2009(a) %
Australia	76.9	73.5
Oceania and Antarctica (excl. Aust.)	2.4	3.0
North-West Europe	7.9	7.2
Southern and Eastern Europe	4.6	3.8
North Africa and the Middle East	1.2	1.5
South-East Asia	2.8	3.4
North-East Asia	1.6	2.8
Southern and Central Asia	0.9	2.3
Americas	0.9	1.1
Sub-Saharan Africa	0.7	1.3

(a) Estimates for 2008-09 are preliminary.



TABLE I.2: INTERNATIONAL MIGRANT POPULATIONS BY DESTINATION AND ORIGIN, 2013 (millions)

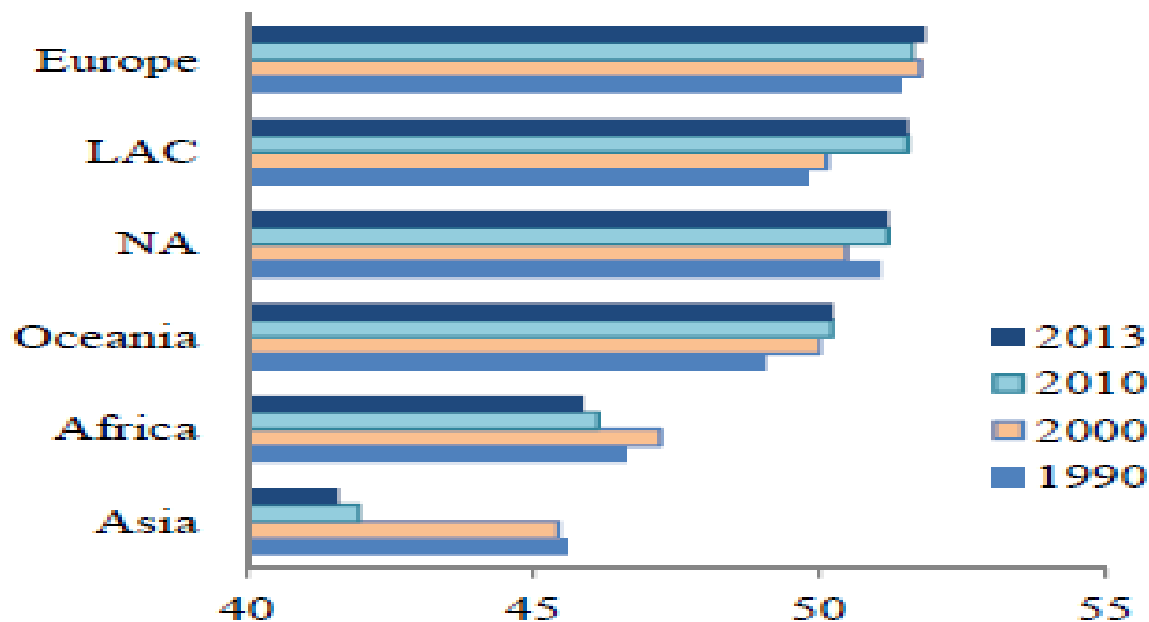
Destination	Origin									World
	Developed regions	Developing regions	Africa	Asia	Europe	LAC	NA	Oceania	Other	
Developed regions ...	53.8	81.8	11.3	38.9	48.8	31.0	2.4	1.6	1.6	135.6
Developing regions	13.7	82.3	19.7	53.7	9.7	5.7	1.9	0.2	5.1	95.9
Africa.....	1.3	17.3	15.3	1.1	0.8	0.0	0.1	0.0	1.4	18.6
Asia.....	9.7	61.2	4.4	54.0	7.6	0.7	0.6	0.1	3.6	70.8
Europe.....	40.1	32.4	8.7	18.7	37.9	4.5	1.0	0.3	1.5	72.4
LAC.....	2.7	5.9	0.0	0.3	1.2	5.4	1.3	0.0	0.2	8.5
NA.....	9.6	43.5	2.0	15.7	7.9	25.9	1.2	0.3	0.0	53.1
Oceania.....	4.1	3.9	0.5	2.9	3.1	0.1	0.2	1.1	0.1	7.9
World.....	67.5	164.0	30.9	92.6	58.5	36.7	4.3	1.8	6.7	231.5

Source: United Nations, Department of Economic and Social Affairs (2013). Trends in International Migrant Stock: The 2013 Revision- Migrants by Destination and Origin (United Nations database, POP/DB/MIG/Stock/Rev.2013/Origin).

Note: LAC refers to Latin America and the Caribbean, while NA refers to Northern America.



Figure I.7. Percentage of women among all international migrants, 1990-2013

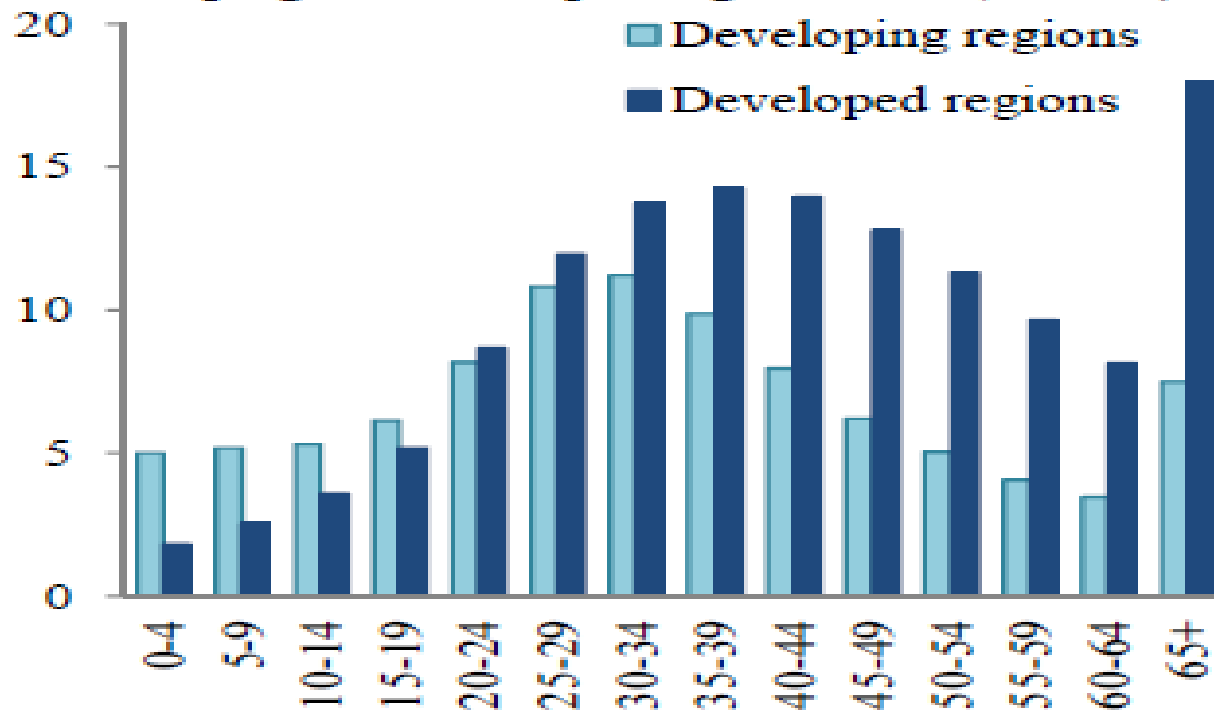


Source: United Nations, Department of Economic and Social Affairs (2013). Trends in International Migrant Stock: The 2013 Revision-Migrants by Age and Sex (United Nations database, POP/DB/MIG/Stock/Rev.2013/Age).

Note: LAC refers to Latin America and the Caribbean, while NA refers to Northern America.



Figure I.8. Age distribution of international migrants in developing and developed regions, 2013 (millions)



Source: United Nations, Department of Economic and Social Affairs (2013). Trends in International Migrant Stock: The 2013 Revision-Migrants by Age and Sex (United Nations database, POP/DB/MIG/Stock/Rev.2013/Age).



How to analyze data on emigration

□ Suggested tables:

- Number of emigrants by sex, age group and country of destination
 - Number of emigrants by sex, age group and number of years since departure
 - Number of emigrants by sex, number of years since departure and country of destination
 - Number of emigrants by sex, age group and place of departure (state/region) and characteristics of their parents -Thematic reports ??
 - For the households which have same place of usual and previous residence in specified duration—for example- less than 5 years for analysis of origins of emigrants within the country
-



How to analyze data on emigration

□ Basic indicators:

- Number of emigrants by year of departure (or duration of departure)
 - Number of migrants by country of destination (arrival)
 - Sex ratio of emigrants
 - Age distribution of emigrants by sex and median age
 - Age distribution of emigrants and median age by sex and country of destination
-



Suggested topics for internal migration-

United Nations Statistics Division

Core topics

❑ **Internal migration**

- **Place of birth**

- Place of usual residence at a specified date in the past
–usually 1 or 5 years before the census

OR

- **Duration of residence**

- **Place of previous residence**



How to analyze internal migration

□ **Data quality of place of birth –lifetime migration**

- Usually it is good quality -each person has only one place of birth and it does not change over time
 - Widely used for analyzing interregional migration
 - Some of the problems are:
 - Confusing arising from changes in boundaries of administrative units in the country as place of birth should be declared in terms of present boundaries
-



How to analyze internal migration

1. Life time migration

- Migration that has occurred between birth and the time of the census
 - Person whose current area of residence and area of birth differ

 - Lifetime in-migrants in respect of the place of destination (arrival)
 - Life time out-migrants in respect of the place of birth (departure)
-



Measured used in analysis-life time migration

- On the basis of the place of birth, the population can be classified in two groups
 - *Lifetime migrants*: persons who live in a place different from the place where they were born
 - *Non-migrants*: persons who live in the place where they were born

 - ✓ Migrants can be subdivided into migration streams on the basis of place of birth and place of usual residence
-



Population movement within a country-Illustration

Place of usual residence	Place of Birth					
	Total	Reg-1	Reg-2	Reg-3	Reg-4	Reg-5
Total	1000	200	100	300	250	150
Reg-1	205	180	5	10	5	5
Reg-2	185	5	90	75	10	5
Reg-3	237	10	2	200	5	20
Reg-4	221	3	3	5	180	30
Reg-5	152	2	0	10	50	90



Population movement within a country-Illustration

□ Discussions

1. What is the total lifetime in-migrants for Region 2
2. What is the total life-time out-migrants for Region 2
3. What is the difference between in-migrants and out-migrants for Region 2
4. What is the difference between total lifetime in-migrants and out-migrants at the country level



Measured used in Analysis

□ *In-migration rate of a region*

$$im_1 = \left[\sum_j M_{1j} / N_1 \right] \times 100$$

Where;

- M_{1j} refers to the migrants living in region 1 who were born in region j
- N_1 is the native population in region 1

Note that $\sum_j M_{1j} = N_1 - N_{11}$



Measured used in Analysis

□ *Out-migration rate of a region*

$$om_1 = \left[\sum_i M_{i1} / N_1 \right] \times 100$$

Where;

- M_{i1} refers to the migrants from region 1 to the i th region who were born in region j
- N_1 represents the total population born in region 1 or native population in region 1



Measured used in Analysis

- Net-migration rate of a region

$$nm_1 = \left[\left(\sum_j M_{1j} - \sum_i M_{i1} \right) / N_1 \right] \times 100$$

Where;

- M_{1j} refers to the migrants living in region 1 who were born in region j
- M_{i1} refers to the migrants from region 1 to the i th region 1 who were born in region j
- N_1 represents the native population in region 1



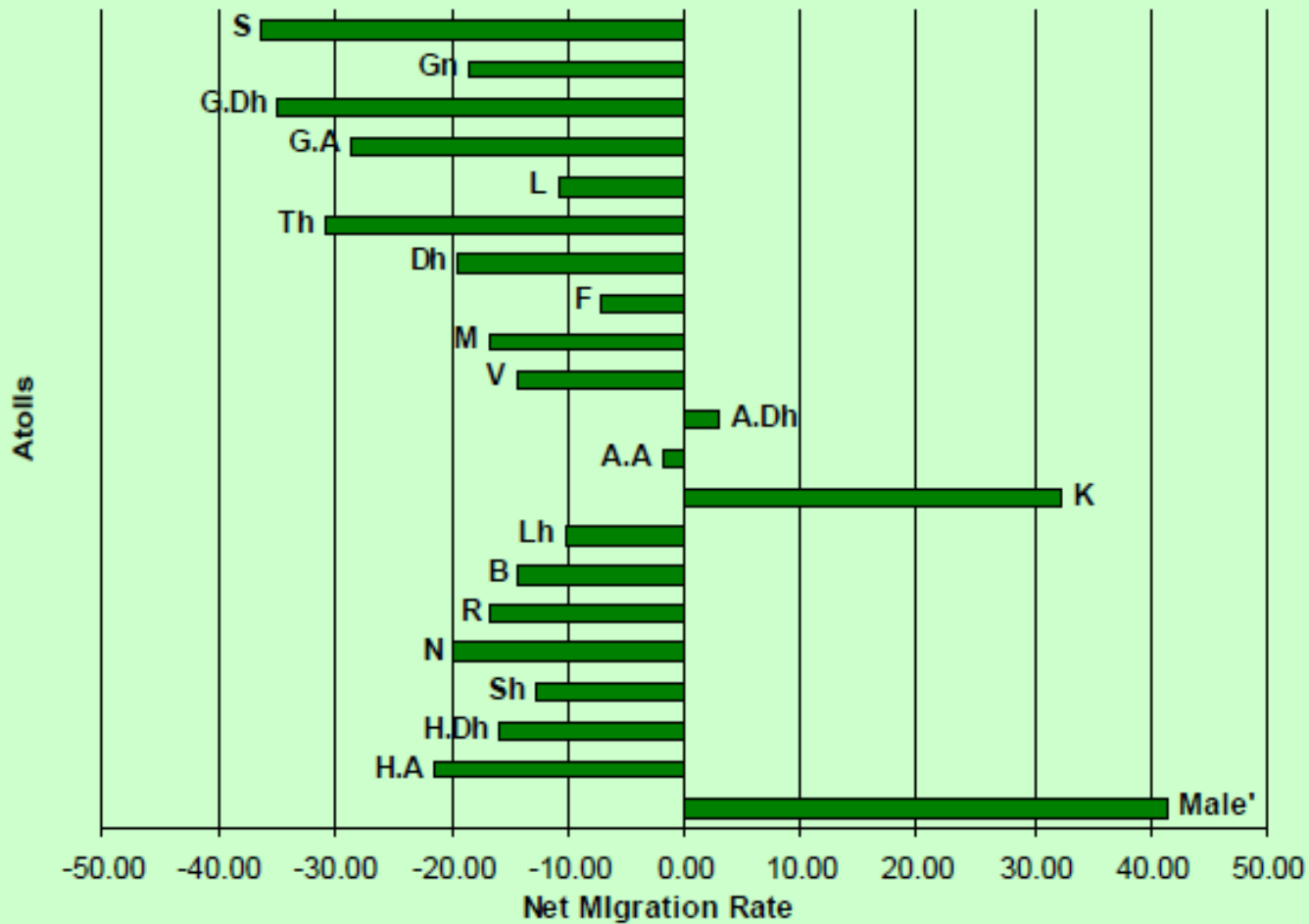
Net migration of life-time migrants by regions of Maldives, Census 2000

Analytical Report, Census of the Maldives-2000

Atolls	In-Migrants	Out-Migrants	Net Migration Rate ^{2/} as a % of enumerated (native born) population
Male ¹	32,884	2,198	+41.23
North Thiladhunmathi (H.A)	423	3,487	-21.6
South Thiladhunmathi (H.Dh)	561	3,272	-16.0
North Miladhunmadulu (Sh)	321	1,771	-12.7
South Miladhunmadulu (N)	406	2,473	-19.8
North Maalhosmadulu (R)	446	2,872	-16.8
South Maalhosmadulu (B)	674	2,046	-14.3
Faadhippolhu (Lh)	1,027	1,985	-10.2
Male ¹ Atoll (K)	5,486	1,124	+32.4
North Ari Atoll (A.A)	832	932	-1.8
South Ari Atoll (A.Dh)	1,198	956	+3.1
Felidhu Atoll (V)	242	495	-14.4
Mulakatholhu (M)	328	1,176	-16.7
North Nilandhe Atoll (F)	240	513	-7.1
South Nilandhe Atoll (Dh)	296	1,279	-19.4
Kolhumadulu (Th)	367	3,223	-30.7
Hadhdhunmathi (L)	360	1,614	-10.8



Net migration of life-time migrants by regions,
Maldives, census 2000





Analysis of internal migration-

Duration of residence

- ❑ Persons who live in the place of residence all their lives are defined as non-migrants
 - ❑ Persons who have ever migrated are defined as migrants:
 - Those born outside the usual residence
 - Those born in the usual residence who had at some time lived outside the place of birth (return migrants)
 - ✓ Therefore number of migrants by duration of residence must be more than –at least equal to – the number of lifetime migrants
-



Analysis of internal migration-

Duration of residence

- ❑ Measured used analysis in analysis
 - Percentage distribution of in-migrants by duration of residence
 - Durations might be classified : Less than one year, 1-4 years, 5-9 years and 10 and more years
 - Median duration of residence
 - Sex ratio by duration of residence
-



Analysis of internal migration-Duration of residence and place of birth

- ❑ Duration of residence can be classified according to the lifetime migrants
 - ❑ Migrants are determined according to the place of birth
 - ❑ Migrants are classified by place of residence using duration of residence
-



Table 9.3: Distribution of life-time in-migrants of atolls by time period of migration for the last twenty years, Census 2000

Atolls	Time period (years) ³					Total
	0-5 years			1-5	6-10	
	0-5	< 1	1-5			
Male ⁷	13,705	2,513	11,192	5,662	6,413	25,780
North Thiladhunmathi (H.A)	405	84	321	182	216	803
South Thiladhunmathi (H.Dh)	1,029	393	636	312	298	1,639
North Miladhunmadulu (Sh)	618	208	410	155	161	934
South Miladhunmadulu (N)	504	117	387	278	242	1,024
North Maalhosmadulu (R)	716	146	570	634	234	1,584
South Maalhosmadulu (B)	742	223	519	177	190	1,109
Faadhippolhu (Lh)	594	114	480	260	228	1,082
Male ⁷ Atoll (K)	2,752	625	2,217	675	687	4,114
North Ari Atoll (A.A)	203	44	159	101	103	407
South Ari Atoll (A.Dh)	491	54	437	153	252	896
Felidhu Atoll (V)	156	30	126	51	70	277
Mulakatholhu (M)	351	82	269	120	161	632
North Nilandhe Atoll (F)	159	42	117	57	56	272
South Nilandhe Atoll (Dh)	343	124	219	86	112	541
Kolhumadulu (Th)	516	126	390	185	180	881
Hadhdhunmathi (L)	685	132	553	227	276	1,188



Analysis of internal migration-Duration of residence and previous place of residence

- ❑ Duration of residence should be classified with place of previous residence for analysis of migration stream, volume of in-migration, out-migration and net-migration
 - ❑ Migrants based on duration of residence have been affected by two factors: deaths and further migration
 - ❑ Origin-destination tabulations for the most recent migration interval will yield data approximating those from the fixed period item for the same interval
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References

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